ABSTRACT

In a semiconductor device of the present invention, the top surface of an n-type silicon carbide layer formed on a silicon carbide substrate is miscut from the (0001) plane in the <11-20> direction. A gate electrode, a source electrode and other elements are arranged such that in a channel region, the dominating current flows along a miscut direction.

In the present invention, a gate insulating film is formed and then heat treatment is performed in an atmosphere containing a group-V element. In this way, the interface state density at the interface between the silicon carbide layer and the gate insulating film is reduced. As a result, the electron mobility becomes higher in a miscut direction **A** than in the direction perpendicular to the miscut direction **A**.